

Noncommercial Alcohol: Understanding the Informal Market

Issue in Brief

A significant portion of all alcohol consumed globally is not reflected in the official statistics, such as production, trade, and sales figures.

These beverages fall into the general category of noncommercial alcohol and are particularly prevalent in low- and middle-income countries.

- traditional drinks produced for home consumption or limited local trade (whether licit or illicit);
- counterfeit products and illicit mass-produced drinks;
- surrogate, or nonbeverage, alcohol.

Because they are not produced and/or distributed within legally monitored or recorded commercial settings, such beverages evade taxation and formal quality checks.

Information on their production, quality, drinking patterns, and related outcomes is limited.

Various economic and social factors drive the production and consumption of noncommercial alcohol.

- High-quality artisanal drinks are a prominent part of local culture, so their production and consumption is a matter of national pride.
- However, demand for many noncommercial beverages worldwide is primarily driven by the significant price differential between commercial and noncommercial products.
- Stringent government controls on legal beverages, including price hikes and limits on physical availability, have been reported to drive the demand to the grey and black markets, particularly among the poorest segments of population.

Limitations:

No internationally accepted standard for quantifying the extent of the informal market or for charting its health and social consequences exists.

Existing studies list a number of methodological limitations when reviewing their findings:

- Results of many studies rely on data from limited geographic and cultural areas; extrapolating results

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to the entire population is therefore problematic, particularly in countries with large and diverse population.

- National survey results may not represent the views of likely consumers of noncommercial beverages, as these individuals may be hard to reach or be among non-responders to surveys.
- Limited time frame of surveys and questionnaires may not capture consumption during special cultural events and festivals or times of year when noncommercial alcohol consumption may be particularly prevalent in a given community.
- Results of research on quality of noncommercial beverages are weakened by small sample sizes, convenience sampling strategies, and limited geographic and demographic scope within countries.

Relevant ICAP publications:

Adelekan, M., Razvodovsky, Y., & Liyanage, U, with Ndetei, D. (2008). *Noncommercial alcohol in three regions*. ICAP Review 3. Washington, DC: International Center for Alcohol Policies. Available: <http://www.icap.org/Publications/ICAPReviews>

Botha, A. (2010). Understanding alcohol availability: Noncommercial beverages. In M. Grant & M. Leverton (Eds.), *Working together to reduce harmful drinking* (pp. 39-62). New York: Routledge.

Haworth, A., & Simpson, R. (Eds.). (2004). *Moonshine markets: Issues in unrecorded alcohol beverage production and consumption*. New York: Brunner-Routledge.

International Center for Alcohol Policies (ICAP). (2005–present). Module 21: Noncommercial alcohol. In *ICAP Blue Book: Practical Guides for Alcohol Policy and Prevention Approaches*. Available: <http://www.icap.org/PolicyTools/ICAPBlueBook/BlueBookModules/21NoncommercialAlcohol/>

What Is the Issue?

A significant portion of all alcohol consumed globally is not reflected in the official statistics, such as production, trade, and sales figures.

These beverages fall into the general category of noncommercial alcohol and are particularly prevalent in low- and middle-income countries.

Because they are not produced and/or distributed within legally monitored or recorded commercial settings, such beverages evade taxation and formal quality checks. Information on their production, quality, drinking patterns, and related outcomes is limited.

Drinks from the informal alcohol sector go by many names—e.g., *moonshine*, *bootleg*, *hooch*—and can be legal, semi-legal, or illegal.

ICAP's term *noncommercial alcohol*, used in this Briefing, refers to:

- **traditional drinks produced for home consumption or limited local trade (whether licit or illicit);**
- **counterfeit products and illicit mass-produced drinks;**
- **surrogate, or nonbeverage, alcohol.**

These three product categories were selected because they are produced outside of the normal commercial beverage alcohol setting and the quality checks for drinking imposed by governments or internal industry mechanisms.

Government policies targeting legal drinks—notably restrictions on their physical availability, marketing, and price—fail to address the informal alcohol market, which, in some areas, is comparable to or larger than the formal sector.

What Is the Debate?

Discussions about the issue of noncommercial alcohol generally revolve around the magnitude of informal markets in different countries and the contribution of such products to harmful outcomes linked to alcohol consumption.

The topic also features in the debates about the effectiveness of regulations that are aimed primarily at the normal recorded commercial sector:

- At issue is the question of whether strict government controls encourage the consumption of noncommercial or informally sold alcohol and increase harm.

But particular focus of existing studies centers on the significance of noncommercial beverages in terms of health outcomes—specifically, whether these drinks pose risks *beyond* those attached to alcohol consumption in general.

There is disagreement around the degree to which noncommercial alcohol is responsible for negative health outcomes, particularly when compared with commercially produced drinks that are made according to strict specifications and standards. For example, a study comparing legal and illegal drinks in Hungary concluded:

The results suggest that the consumption of home-made spirits is an additional risk factor for the development of alcohol-induced cirrhosis and may have contributed to high levels of liver cirrhosis mortality in Central and Eastern Europe.... The health consequences of illegal production and consumption are well recognized in some other parts of the world. (1, pp. 536, 539–540)

Other researchers argue against the hypothesis that noncommercial alcohol consumption creates “additional problems over and above those of ethanol consumption alone” (2, p. 1622; see also: 3).

Examining the potential harmful components... in detail, the evidence so far has supported only a potential impact of higher concentration of alcohol itself. All other components have not been found in the vast majority of unrecorded alcohol at levels known to cause health harm.... Given current and limited knowledge, the most important public health threat of unrecorded alcohol may, in fact, stem from an associated heavy drinking consumption pattern (i.e., “binge drinking”) combined with high alcoholic strength in beverages, thus leading to more pronounced effects of alcohol intoxication and poisoning. (4, p. 876)

What Is the Evidence?

Prevalence

According to WHO data, about 30% of all alcohol consumed globally is unrecorded¹ (5-6), but this figure is much higher in some regions:

- Unrecorded per capita consumption is highest in Africa, Central and South America, and central and eastern Europe (2, 5-6).
 - For example, the volume of unrecorded consumption was estimated to be 10.7 liters of pure

1 WHO includes six product types under its header of “unrecorded alcohol”: home production (licit/illicit); travelers’ imports and cross-border shopping; smuggling (either organized criminal activity or travelers importing amounts exceeding the legal allowance); surrogate (nonbeverage) alcohol; tourist consumption; and beverages with alcohol content below the legal definition of alcohol.

alcohol per capita for population aged over 15 years in Uganda, and 12 liters in Moldova.

- Compared to official consumption figures, the proportion of unrecorded alcohol is highest in Africa and southeast Asia (2, 5-6).
 - For example, over 90% of all alcohol consumed in east Africa, and at least two thirds of all consumption in the Indian subcontinent, is thought to be unrecorded (5).

Although the composition of the informal market varies by region, country, and community, existing studies suggest that noncommercial beverages may well constitute the bulk of unrecorded consumption in these regions (2, 8).

Where they exist, estimates of the informal market are derived from a range of sources (e.g., 7-11), including:

- surveys;
- expert questionnaires;
- police records;
- indirect calculations based on the sales figures for raw materials likely to be used for alcohol production—e.g., sugar, grains, or fruits;
- calculations based on the indicators of alcohol-related harm—e.g., mortality from liver cirrhosis, alcohol poisoning, alcohol-impaired driving, and assaults that involved alcohol consumption by either perpetrator or the victim.

The scope and reliability of these sources vary greatly from country to country (see the discussion of **Limitations** below).

Home-produced traditional drinks

Produced for home consumption or limited local trade, traditional beverages likely account for much of unrecorded alcohol intake in many regions, particularly in low- and middle-income countries (5, 8).

Production, distribution, and consumption of such drinks form an integral part of many cultures and can be significant in economic and social terms (e.g., 3, 12-13).

- For example, in sub-Saharan Africa, informal alcohol production and local trade has traditionally provided livelihood for rural poor, particularly women, for whom it is often the primary means of supporting their families (14-16).
- In communities around the world, ceremonial consumption of traditional drinks—including those produced in the informal market—is at the heart of

many important social and cultural events, facilitating the sense of group identity, cohesion, and leisure-time interaction (e.g., 17-21).

Distilled, brewed, or fermented, such drinks are made from a variety of ingredients. For example:

- *Samogon*, a traditional beverage that can be home-distilled from grain, potatoes, and fruits, using sugar, remains popular in Russia and other republics of the former Soviet Union. It is cheap and easy to make, relying on widely available household equipment (22-23).
- Fruit, rice, and other grain-based wines and “medicinal liquor” have been popular in China for millennia (24). The latter incorporates traditional herbs to treat a range of medical conditions (25).
- *Chang’aa*, a distilled drink, is perhaps the predominant noncommercial beverage of Kenya’s poor. Also referred to as “kill-me-quick,” it is made from a variety of grains and may be “fortified” with surrogates. Other noncommercial drinks popular in Kenya include *busaa*, a brew from finger millet malt; palm wine, especially prevalent along coastal areas; and *muratina*, a sour alcohol drink from sugarcane and muratina fruit (5).
- Sugar cane spirit known as *cachaça* or *pinga* is the national drink in Brazil, available both legally and illegally. Unregistered production of *cachaça* is estimated to be widespread, and the use of industrial alcohols to strengthen illicit *cachaça* has been reported (e.g., 26).

Although little is known about the prevalence of home-produced drinks at local, national, and regional levels (3, 5, 8), the following has been estimated from surveys and expert interviews:

- In a series of national surveys of adults in Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, and Ukraine, consumption of only illegal beverages (*samogon*), or of a combination of legally and illegally produced drinks, was reported, on average, by 49% of men and 40% of women (27).
 - This figure was higher in some countries, for example: 86% of men and 78% of women in Georgia, 55% of men and 54% of women in Moldova, and 59% of men and 51% of women in Ukraine purchased *samogon*, whether exclusively or alongside legal products (27).
- In Sri Lanka, *kasippu*, an illegal distillate from grains or palm juice, accounts for a significant share of alcohol consumption in approximately 80% of individuals reporting daily alcohol intake, and in 40% of frequent drinkers (28; for further discussion of *kasippu*, see also: 41, 44).

- Around 7% of survey respondents in five Chinese provinces reported unrecorded alcohol consumption in the past 3 months, primarily of rice wine (accounting for 14.9% of overall consumption); this figure was higher in some provinces and in rural areas (e.g., 24% of respondents and 29.9% of overall consumption in the city of Hengyang and its adjacent rural area in Hunan Province) (29).
- A 2004 national survey in Estonia revealed that
 - 6.4% of the adult population consumed illegal or surrogate alcohol, with 59% of these individuals drinking *samogon*;
 - about one-third of the total volume of spirits consumption in the country was in the form of surrogate or illegally-produced alcohol (30).
- Officials in the U.S. state of Virginia estimate that the state loses USD 20 million a year in tax revenue to the production and consumption of illicit whiskey, variously referred to as *moonshine*, *white lightening*, and *corn liquor*, popular in some rural areas and poor inner cities (31).

Counterfeit products and mass-produced illicit drinks

Counterfeit beverages packaged as legitimate commercial products and mass-produced illicit drinks coexist with legal beverage alcohol in many countries.

Counterfeiting is encouraged by poor law enforcement, inadequate legal protection for intellectual property, corruption, and unmet consumer demand due to restricted availability of legal alcohol (32).

Counterfeiting takes two forms:

- **substitution/refill, when empty bottles of legitimate products are refilled with cheaper drinks in alcohol-serving establishments;**
- **organized criminal counterfeit that involves manufacture of fake packaging and/or liquid for local and international distribution.**

Estimates by the International Federation of Spirits Producers place the worldwide loss through counterfeiting of spirits at between € 600 and € 900 million a year (33). For example:

- Up to 50% of all alcohol sold in Russia is thought to be counterfeit (34), prompting country-wide crackdown on bootleg vodka in 2009.
- According to the Union of the Czech Spirits Producers, approximately one in four alcohol bottles sold in the country each year is counterfeit (80).

- Eighteen percent (18%) of Estonian consumers who reported knowingly buying and drinking illegal or surrogate alcohol said they used counterfeit products (30).

Surrogate alcohol

Surrogate alcohol refers to liquids that contain ethanol or other potentially intoxicating liquids but are not intended for drinking, such as medicinal compounds, industrial spirits, automobile products, and cosmetics.

Although manufacturers in many jurisdictions deliberately include compounds to discourage ingestion, consumption of surrogate alcohols has been reported among problem drinkers of lower socioeconomic strata (e.g., 35–36, 42, 75).

- In a study on the prevalence of hazardous drinking and its socioeconomic distribution among men in a mid-sized industrial Russian city (Izhevsk), 7% of working-age respondents reported drinking surrogate alcohols (37).
- In an Estonian sample of consumers who reported unrecorded alcohol consumption, 23% used ethanol-based surrogates (30).
 - It has been suggested that survey figures on surrogate alcohol consumption in eastern Europe are underestimated since likely consumers of such beverages tend to be non-responders to surveys (38; see **Limitations** below).
- Consumption of surrogates accounted for a sizable share of unrecorded alcohol consumption in Finland between 1950s and 1970s, diminishing in importance as the living standards improved (39–40).

Adding surrogate alcohols into home-produced drinks to increase beverage strength, amend taste, or, as some producers believe, speed up fermentation has also been reported (for discussion, see: 8; see also: 50, 78).

Factors Driving Noncommercial Alcohol Production and Consumption

Various economic and social factors drive the production and consumption of noncommercial alcohol:

- **High-quality artisanal drinks are a prominent part of local culture, so their production and consumption is a matter of national pride** (e.g., *sahiti*, Finland's all-grain traditional brew flavored with juniper berries, and fruit brandies in central and southern Europe).

- **However, demand for many noncommercial beverages worldwide is primarily driven by the significant price differential between commercial and noncommercial products (e.g., 8; 30, 35, 41-43, 50).**

Since such products are untaxed and their producers can use low-cost ingredients and production methods, they tend to be cheaper (volume for volume) than commercial drinks.

- For example, in Sri Lanka, *kasippu* is on average four times cheaper than its locally-produced legal equivalent, *arrack*, and eight times cheaper than European-style legal beer (44).
- In Kenya, legal alcohol brands generally sell for an equivalent of USD 1 to 3 a bottle, whereas home-produced *chang'aa* may cost as little as USD 0.13 per glass—a significant difference for 46% of Kenyans who live on less than USD 1 a day (45).

There is evidence that, as income levels rise, illegal production and intended consumption of illegally-produced and surrogate alcohols diminish (39-40, 46-48).

- Conversely, reports from a number of countries indicate that both production and consumption of noncommercial beverages tend to flourish during economic crises and political unrest, fueled by high unemployment, unmet consumer demand, inadequate legislation, corruption, and weak enforcement (e.g., 23, 35, 49). Lack of economic and/or social stability has been linked to surrogate consumption in particular (37).

Stringency of certain control policies around commercial beverages may shift demand to the informal market.

- Government campaigns to restrict alcohol availability in Poland and the Soviet Union in the 1980s led to a marked rise in illegal alcohol production, trade, and consumption, as well as a perceived rise in the consumption of surrogate alcohols (23, 51-52).
 - According to official estimates, by the end of the 1985–1987 anti-alcohol campaign in the Soviet Union, *samogon* production exceeded state alcohol production by 40 to 50% (23).
- On the other hand, opening of legal alcohol outlets in a Norwegian county where no off-license stores were available before 1991 led to a decrease in the use of home-made and smuggled beverages (53).

Health and Social Outcomes

Commercial alcohol production is regulated and subject to stringent requirements and quality standards; these may be imposed by government regulation and legislation, but are also subject to internal company-level controls over integrity, purity, and quality of products (for an overview, see: 54).

Since they evade formal quality checks, noncommercial products may pose health risks from:

- **presence of toxic compounds, whether due to adulteration or lack of control during beverage production and/or storage (82);**
- **high ethanol content (particularly in surrogate and adulterated drinks), facilitating intoxication and risking alcohol poisoning.**

Chemical analyses of beverage samples from the informal sector in a number of countries have yielded mixed results.

Some studies find that such beverages are more likely than legal products to contain chemical components associated with acute toxic effects, especially liver damage and alcohol poisoning, and cancer risk:

- The presence of compounds such as methanol, propanol, butanol, isoamyl alcohol, ethyl carbamate, and long-chain alcohols in quantities likely to be hepatotoxic has been described in analyses of illegal and surrogate products in eastern and central Europe (1, 38, 55-56, 79).
- Bacterial and fungal contamination was reported in some traditionally brewed beverages in Africa, indicating lack of storage and fermentation controls (57).
- Potentially toxic concentrations of lead were detected in chemical analyses from the United States (58, 71, 74), and relatively high concentrations of acetaldehyde were found in local drinks in Guatemala (59), Mexico (81), and Poland (79)—both contaminants likely linked to improper distillation techniques and use of unsafe makeshift equipment.

Other studies find that noncommercial drinks generally have comparable volatile composition to commercial products (60-61) and do not pose a higher toxic hazard or health risk beyond that linked to any ethanol intake (62-65).

- Home-produced traditional drinks, in particular, appear to be of generally high quality and taste. It appears that many such beverages undergo informal quality checks that help those producing them stay in business (e.g., 3).

- Such drinks are also not necessarily higher in alcohol content than their legal equivalents, and many are, in fact lower in content.
 - However, as alcohol concentration in these beverages tends to be unlabeled or labeled incorrectly, and since many traditional drinks are consumed in vessels that do not contain standard drink units, consumers of such products cannot effectively monitor their own drinking and assess the likely effects of their consumption (e.g., 79).

In countries where surrogate alcohol consumption has been reported, studies find that these products often exhibit very high ethanol concentration and may contain substances that are toxic (e.g., 42, 55, 67, 75).

- In a Russian sample, the risk of dying from causes directly related to problem drinking (e.g., alcohol psychosis, alcoholic cardiomyopathy, alcoholic cirrhosis of the liver, and acute alcohol poisoning) was 25.5 times higher, and the all-cause mortality risk was 5.3 times higher, among surrogate alcohol users, compared to individuals who consumed only legal alcohol beverages (66).

It is possible that much of perceived additional health risks of particular noncommercial beverages may stem from the risky patterns of drinking associated with them—e.g., extreme drinking or chronic consumption (68).

- Production, sale, and consumption of certain illegal beverages are surrounded by other dangerous behaviors, including high-risk sexual practices and violence (14, 69-70, 76-77).
- It has been suggested that individuals primarily consuming cheap noncommercial alcohol may be at elevated risk for harm because they are more likely than the general population to exhibit problem drinking and be of lower socioeconomic status, with limited access to healthcare and other services (e.g., 42, 44, 59, 71).

Counterfeit and illicit mass-produced beverages may pose health risks due to low-quality ingredients; their link to organized crime threatens public order and safety.

- In addition, widespread counterfeiting results in consumer deception, loss of public confidence in legal products, and loss of government revenue (see discussion: 54).
- For example, widespread counterfeiting in Russia during the economic transition of 1990s encouraged *samogon* consumption as consumer confidence in legal beverages dropped (72).

What Are the Limitations?

No internationally accepted standard for quantifying the extent of the informal market or for charting its health and social consequences exists.

- Studies vary greatly in terminology, scope, complexity, and scale.
- Lack of reliable and comparable data about the informal alcohol market contributes to the limitations of official alcohol consumption figures in describing actual drinking behavior and outcomes and in informing policy.

To date, only a few countries have estimates of the informal alcohol sector (5).

- Although the topic has begun to attract more attention over the years, little published material exists about production, sale, and consumption of noncommercial drinks.
- This must be taken into account when assessing reliability of the available data or making cross-country, and even cross-study, comparisons

Existing studies list a number of methodological limitations when reviewing their findings.

- Results of many studies rely on data from limited geographic and cultural areas; extrapolating results to the entire population is therefore problematic, particularly in countries with large and diverse population.
- National survey results may not represent the views of likely consumers of noncommercial beverages, as these individuals may be hard to reach or be among non-responders to surveys.
- Limited time frame of surveys and questionnaires may not capture consumption during special cultural events and festivals or times of year when noncommercial alcohol consumption may be particularly prevalent in a given community.
- Results of research on quality of noncommercial beverages are weakened by small sample sizes, convenience sampling strategies, and limited geographic and demographic scope within countries.

Obtaining more representative sampling of illegal beverages and implementing comprehensive studies of both rural and urban populations within countries may be difficult as legal ramifications often discourage producers, sellers, and consumers of such beverages from participating fully.

- Any discussion of the informal market must take into account the sensitivity of asking about stigmatized behavior (e.g., chronic drinking) and clandestine/illegal activities.

It has been argued that the popularity of cheap noncommercial products is probably underreported in large-scale surveys, as the likely producers and consumers of such drinks—rural residents and individuals of lower socioeconomic status—may be hard to reach.

- According to surveys of rural populations in several Russian regions, 86 to 95% of respondents preferred *samogon* to state-produced vodka (73), significantly higher than in reports from general-population surveys (see above).
- Qualitative studies and rapid situation assessments among disadvantaged groups in several countries suggest the importance of home-produced drinks as both a significant source of income (for producers and sellers) and the only affordable source of alcohol and recreation (for consumers) (e.g., 8, 15, 41-42).

Social and cultural gaps between the research team, healthcare providers, and local population may further reduce the reliability of responses—for example, individuals from marginalized and impoverished communities may not be accustomed to interacting or speaking frankly to outsiders (e.g., 59, p. 757).

Finally, lack of set quality and production standards and inability to enforce rules and laws otherwise applied to commercial products (e.g., on product quality, packaging, alcohol availability, pricing, and serving practices) place noncommercial alcohol production, distribution, and consumption beyond the reach of government policies and public health initiatives.

Policy: Unintended Outcomes

In countries where noncommercial drinks are prevalent, any discussion of alcohol policy and interventions must also consider the dynamics of the informal market.

- As noted above, stringent government controls on legal beverages, including price hikes and limits on physical availability, have been reported to drive the demand to the grey and black markets, particularly among the poorest segments of population (e.g., 23, 44, 51-52).

Attempts to regulate the informal market have important social and economic implications.

- Many traditional beverages have a strong cultural significance and are a positive part of community social fabric. Any initiatives aimed at such products should be reasonably sensitive to popular opinion and the local way of life.
- Governments may be reluctant to enforce punitive action against the informal market, particularly when production and sale of such beverages form a significant source of income for impoverished and

marginalized segments of population. Indeed, in many African countries, women in rural areas earn their place in community because they contribute to their families' economic survival by producing and selling noncommercial drinks.

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